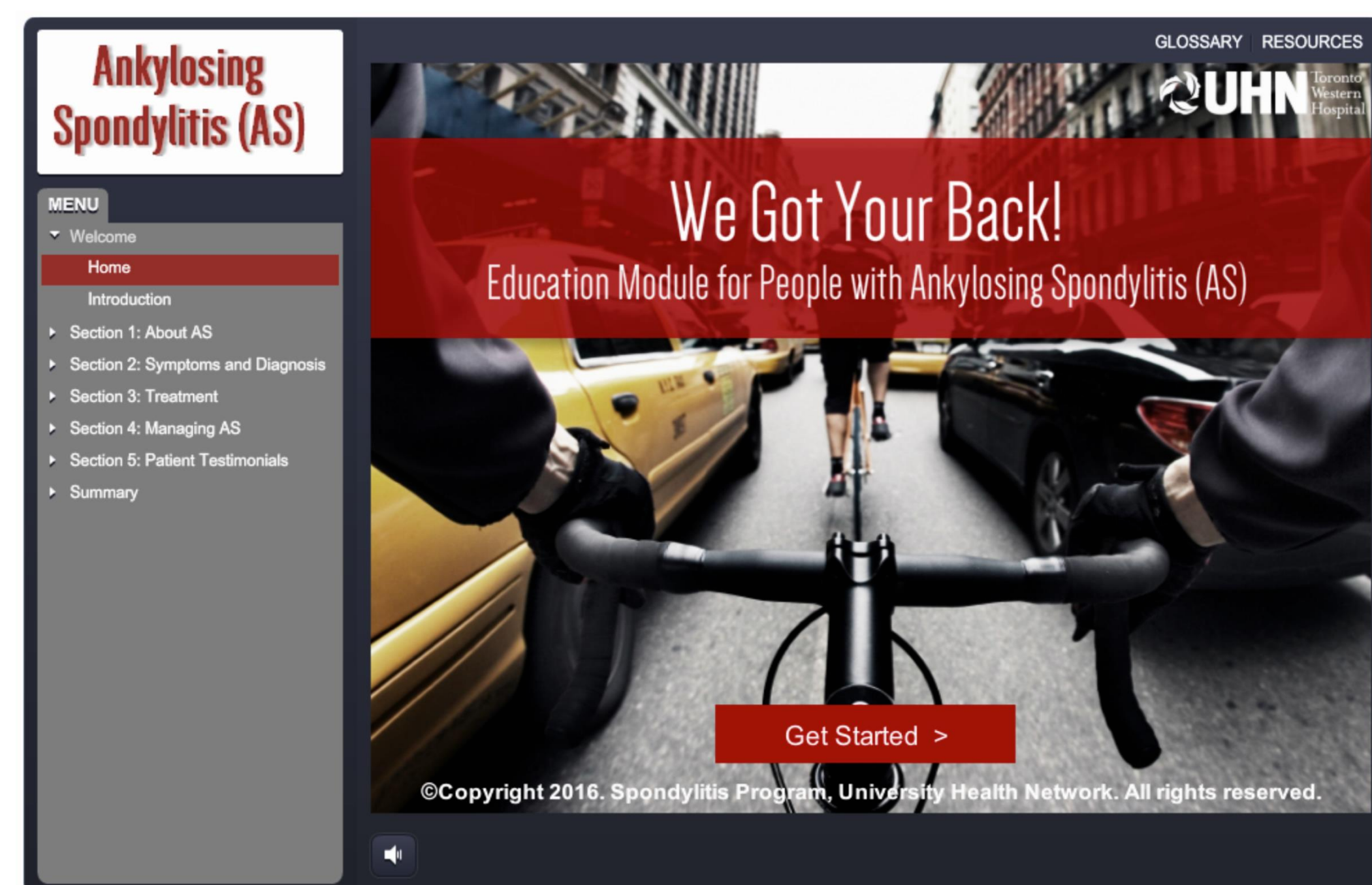


Impact of E-Learning on Knowledge, Self-efficacy and Exercise Behaviours of Patients with Axial Spondyloarthritis: Results from a Longitudinal Randomized Control Trial

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Background

There is a growing body of evidence to support the effectiveness of education programs for patients with arthritis (1). Despite this, there has been little development or investigation into education strategies specifically for patients with axial spondyloarthritis (axSpA). A number of studies examining education strategies for patients with various forms of arthritis have involved an interdisciplinary approach and have found to have positive impact on disease activity, function and overall health (2). Furthermore, the use of an electronic format for education has been shown to be preferred over other methods of education for patients with axSpA (3). As such, the Toronto Western Hospital Spondylitis Program developed a web-based e-Learning education module for patients with axSpA with input from patients with axSpA and an interdisciplinary team of health care professionals. The module consists of an interactive web-based platform covering evidence-based topics including diagnosis, treatment and self-management for axSpA.



Available at: www.wegotyourbackTWH.ca

Purpose

To measure the effect of the axSpA e-Learning patient education module with respect to: 1) knowledge of axSpA; 2) chronic disease self-efficacy, and 3) exercise behaviour.

Methods

Fifty-six adult patients with axSpA attending a tertiary academic spondylitis clinic were randomly assigned to one of two groups: 1) e-Learning intervention, where patients were emailed a link to the online web-based patient education module and were asked to complete the module at their leisure; or, 2) usual care (control group). All patients completed baseline and follow-up questionnaires that included: the Ankylosing Spondylitis (AS): "what do you know" knowledge questionnaire (4); Stanford Chronic Disease Self-Efficacy Scale (5) and, the Stanford questionnaire for Exercise Behaviours (6). Descriptive statistics including means (standard deviation) were used for continuous variables and frequency (%) for categorical variables. Student's t-test (parametric) and Mann-Whitney test (non-parametric) was used to compare continuous variables. Fisher's exact test was used to compare categorical variables. Sign test was used for paired continuous outcomes. All analyses were conducted on SAS 9.2

Results

Twenty-three patients with axSpA completed the e-Learning education module, in addition to usual care, and 33 patients continued with usual care. Overall mean (SD) age was 42.3 (12.9) years, 69.6% were male, mean (SD) disease duration was 12.9 (10.2) years and 75% had a post-secondary education. There were no statistically significant differences between the two groups at baseline (Table 1) or immediately following the completion of the e-Learning module (Figures 2 and 3). At the 6-12 month follow-up there was an overall increase in the number of minutes dedicated to all types of exercise the week prior to completing the outcome measures in the intervention group compared to controls, with significant increase in the average minutes dedicated to bicycling as a form of exercise from a mean of 5.2 minutes to 34.6 minutes, $p=0.02$ (Figure 4).

Figure 1: Study recruitment

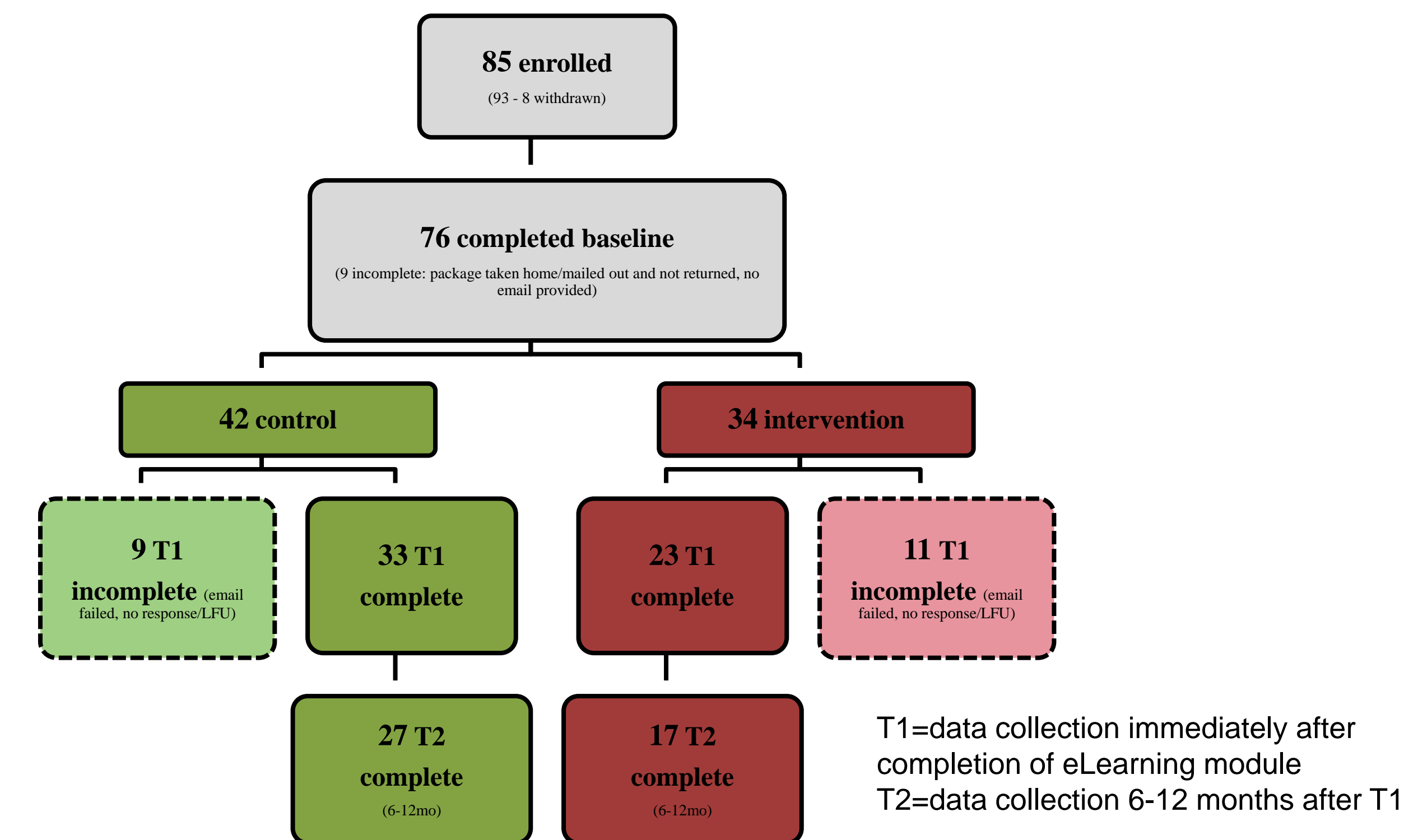


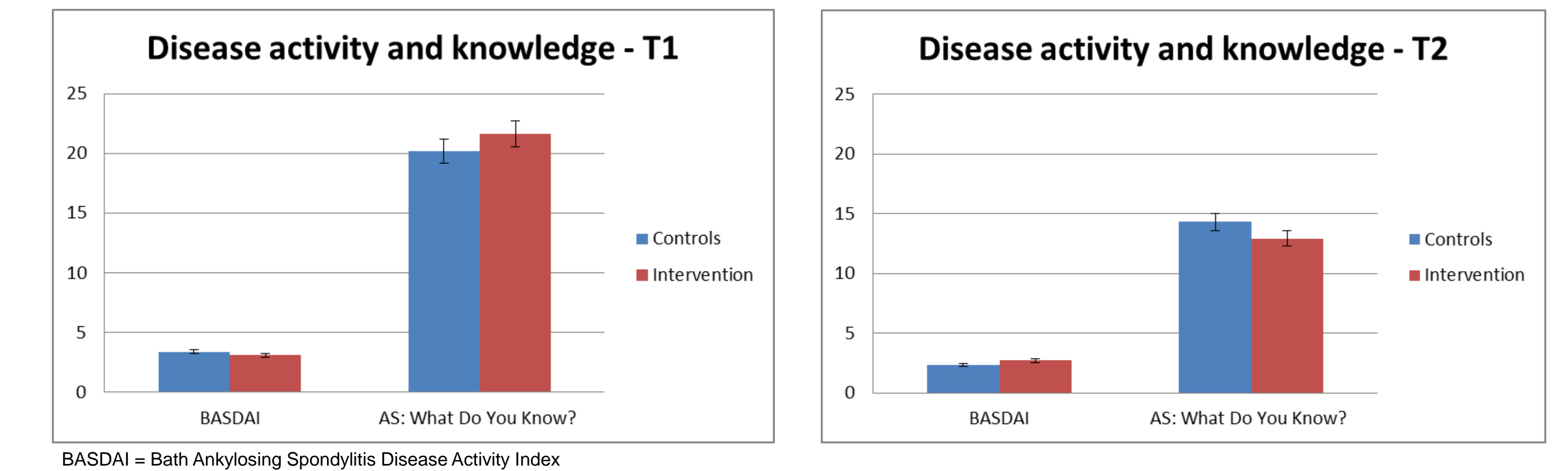
Table 1: Baseline demographics and disease characteristics

Variable	Frequency (%) or Mean (sd)		p-value
	Controls N=33	Intervention N=23	
Age (years)	40.0 (12.4)	44.6 (13.4)	0.17
Disease duration (years)	10.4 (9.1)	15.3 (11.3)	0.13
Sex (male)	66.7	73.9	0.77
Education:			0.64*
University	75.0	81.8	
College	12.5	4.6	
High School	12.5	9.1	
Unknown	0	4.6	
Employed	87.9	82.6	0.70
Human leukocyte antigen-B27 (present)	75.0	86.4	0.49
Erythrocyte sedimentation rate	12.7	6.3	0.17
C-reactive protein	8.7	3.7	0.40
Extra-articular manifestations:			
Inflammatory bowel disease	6.3	8.7	1.00
Uveitis	21.9	34.8	0.36
Psoriasis	15.6	17.4	1.00
Bath ankylosing spondylitis disease activity index (BASDAI) score	3.3 (2.7)	3.0 (2.1)	0.94
Pharmacological management:			
Non-steroidal anti-inflammatories	81.3	69.6	0.35
TNF α -inhibitors	62.5	60.9	1.00
Disease modifying anti-rheumatic drugs	9.4	17.4	0.44
Other Medications	9.4	17.4	0.44
Body mass index	26.6 (4.4)	28.0 (3.4)	0.45
Smoking Status	25.0	13.0	0.33
Co-morbidities:			
Respiratory	6.3	14.3	0.37
Cardio-vascular	21.9	14.3	0.72
Mental-illness	3.1	14.3	0.29
Other	13 (40.6%)	7 (33.3%)	0.77

*p-value compares (college/university vs. s high school)

Results (cont'd)

Figure 2: Comparison of disease activity and disease knowledge by group immediately following completion (T1) and 6-12 months after T1 (T2)



BASDAI = Bath Ankylosing Spondylitis Disease Activity Index

Figure 3: Chronic disease self-efficacy by group immediately following completion (T1) and 6-12 months after T1 (T2)

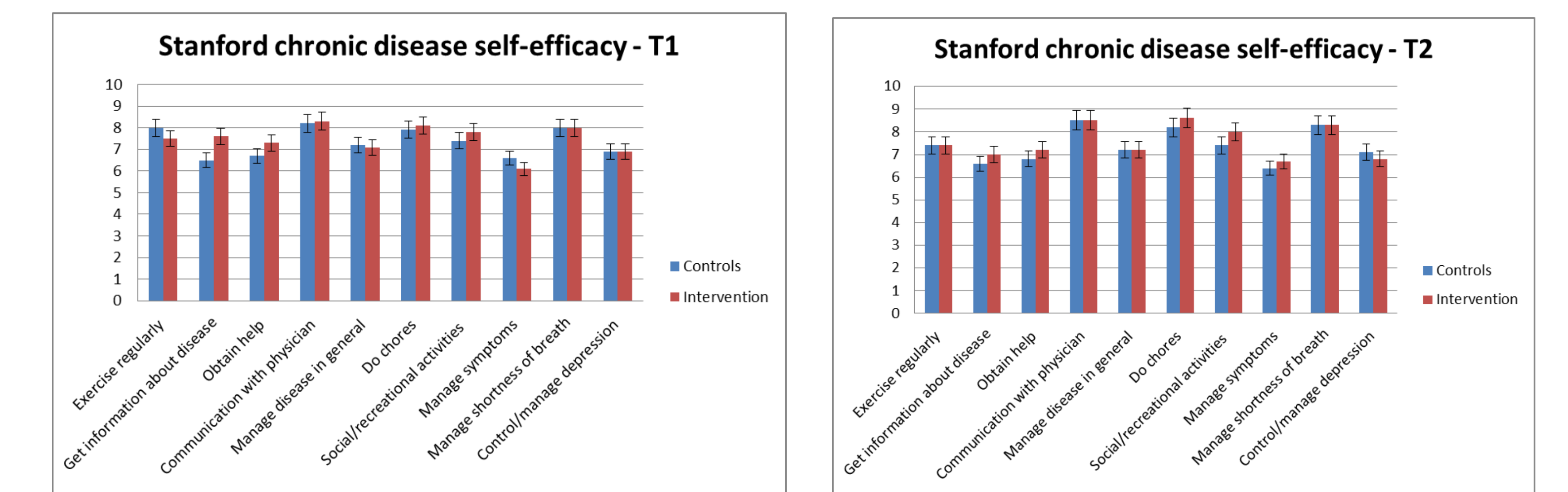
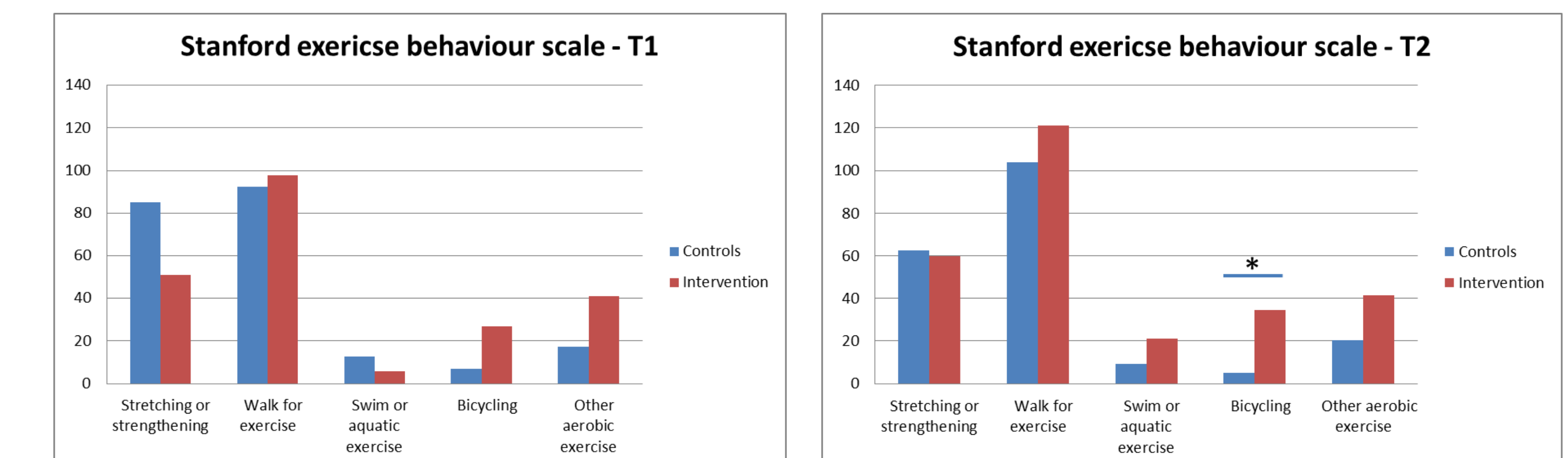


Figure 4: Exercise behaviour by group immediately following completion (T1) and 6-12 months after T1 (T2)



Conclusions

The results of this study demonstrates the addition of the axSpA e-Learning patient education module to usual care is equivalent to usual care provided at a tertiary academic spondylitis clinic and has potential to provide benefit to patients with axSpA who have limited access to specialty care. Long-term results suggest a significant positive impact on exercise behaviours in patients with axSpA who completed the e-Learning module.

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